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Infantry Training

Volume 1

INFANTRY PLATOON WEAPONS

PAMPHLET No 7

Grenades and Pyrotechnics

(All Arms)

1965

**This pamphlet supersedes Infantry Training Volume 1, Infantry Platoon
Weapons, Pamphlet No 7 GRENADES (All Arms) 1951.
(WO Code 8592).**

AMENDMENTS

DISTRIBUTION

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MILITARY BOARD

Army Headquarters
CANBERRA
1/9/1965

A handwritten signature in dark ink, appearing to read 'B. W. L. L.', is written over the printed text.

By Command of the Military Board.

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INFANTRY TRAINING
VOLUME 1 — INFANTRY PLATOON WEAPONS
PAMPHLET No 7
GRENADES AND PYROTECHNICS
(All Arms)

1965

INTRODUCTION

Aim

1. The aim of this pamphlet is to teach the recognition, preparation, and use of grenades, trip flares and hand held flares.
2. Included in this pamphlet are the Trip Flare Marks 2 and 2/1, the Thunderflash Mark 8, and Hand Held flares.

Layout

3. The pamphlet is set out as a series of lessons on the various grenades and pyrotechnics in service. Grenades of similar mechanisms (80, 83, etc.) are grouped together. Training tests and notes on training with live grenades are given in the annexes to this pamphlet.

Training Materials

4. The following stores are available for use in training:
 - a. *M30 Practice Hand Grenades.* These are light blue in colour and when issued by RAAOC they are primed with an igniter type fuze and a filler of black powder.
 - b. *36 Drill Grenades.* These are painted white and have holes drilled in the body to show that they may be used in training.
 - c. *Drill Detonators.* These are for use in 36 drill grenades. They have a hole drilled through them and are partly filled with wood.
 - d. *Igniter Set.* Throughout the pamphlet, a unit consisting of a length of safety fuze, a cap and a detonator, is referred to as an igniter set.
 - e. *Containers.* These are boxes and fibre containers to hold the drill, practice, or inert stores. They are marked to indicate the nature of the stores that they contain.

Safety Precautions

5. Safety precautions are to be carried out on all grenades before each training period begins, and whenever a grenade is first picked up. This must be impressed on all those who handle grenades.
6. Instructors must ensure that grenades drawn for a lesson are drill, or practice types only. It is forbidden to use live HE grenades to show a squad the recognition features of a grenade. Diagrams, especially coloured ones, can be used to teach recognition.

Blinds

7. The method of destroying "*blind*" grenades is covered in Infantry Training Volume III, Pamphlet 31, Range Work. (All Arms).

Technical Details

8. Further technical details of grenades and their mechanisms are contained in the Text Book of Ammunition, Pamphlet No 6.

Recruit Instruction

9. The M26 and 36 HE grenades, and the M30 practice grenade are taught during the soldier's basic training. The periods shown in this pamphlet are basic teaching periods, and it should be appreciated by instructors that extra periods must be allotted to allow men to get enough practice to become proficient, especially in throwing and firing grenades.

Trained Soldier Instruction

10. The emphasis during training must be on practice with drill and practice grenades from battle positions. This is the only way to ensure that the soldier will throw the various grenades in the most efficient way. The time available for such training is limited but the use of grenades can easily be incorporated in trained soldier exercises with other weapons and in tactical exercises.
11. During training with live grenades, instructors should not place too much stress on the question of danger, which could lead to lack of confidence and nervous handling, but are to impress on men the need for care and common sense.

LESSON 1 — THE M26 GRENADE

INSTRUCTOR'S NOTES

Aim

1. To teach recognition, and throwing of the M26 grenade.

Stores

2.
 - a. Each instructor and soldier should have three Practice Grenades in fibre containers.
 - b. Each instructor should have a diagram to show the mechanism and colour markings of an M26 grenade. (See Figures 1 and 2).

Instructional Knowledge

3. The first safety precaution is to make certain of the type, and condition of the grenades to be used. This precaution is to be carried out always under the supervision of the instructor at the start of every grenade training period except this one when it will be taught after Paragraph 14 has been explained to the squad.

Periods

4. Two 40-minute periods are required to teach this lesson. A lesson break should be taken after Paragraph 21 is taught.

CONDUCT OF THE LESSON

Preliminaries

5. Give each man in the squad three M30 practice hand grenades in fibre containers. These should be placed with the top of the container upright, on the ground, in front of the men.

Approach

6. *Explain.* The M26 grenade is a high explosive anti-personnel grenade. It has an effective casualty radius of 15 metres, although some fragments may be thrown as far as 180 metres from the point of burst. The grenade is useful for clearing enemy from slit trenches, dugouts, and buildings. It can also be used for all types of close quarter battle, street fighting, ambushes, and night fighting. The thrower must call "**Grenade**" to warn other men of his section or platoon that he has thrown a grenade.

Description

7. *Use a Diagram to Explain and Demonstrate.* The grenade has three principal parts; body, filler, and fuze assembly.

a. The body is a smooth sheet metal container with a seam around the middle. It is shaped like a lemon. The outer case is lined with a coil of serrated wire and filled with five and a half ounces of high explosive. An inner case seals the HE filler and provides the opening into which the fuze assembly is screwed. The grenade weighs one pound.

b. The fuze assembly is a mechanical and chemical device that causes the filler to detonate. It is screwed into the body of the grenade and requires no preparation prior to the grenade being thrown. During its operation the fuze is silent, sparkless and smokeless. A safety lever is held in position outside of the grenade body by a safety pin.

8. Questions from and to the squad.

Recognition

9. *Use a Diagram to Explain and Demonstrate.* The M26 HE grenade is olive drab in colour. It has yellow markings to indicate that it has a high explosive filling. Around the top of the grenade is a yellow circle. On the centre of the body is stencilled "M26 GRENADE HAND FRAG", the year of manufacture and a lot number.

10. Questions from and to the squad.



Figure 1 — The M26 Grenade

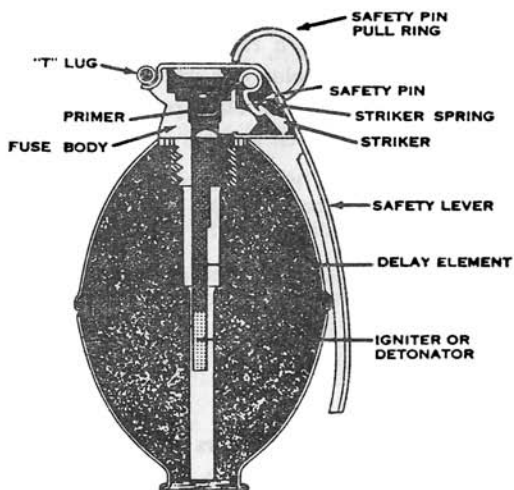


Figure 2 — M26 Grenade — Mechanism before Throwing.

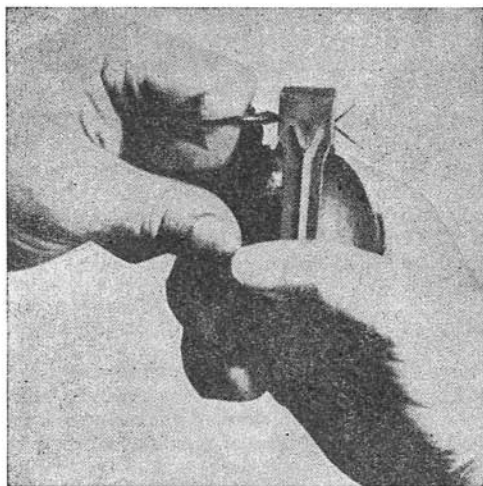


Figure 3 — M26 Grenade — Holding the Grenade.

11. *Explain.* For safety in training the M30 practice grenade is used instead of the M26, which it resembles, except that it is:

- a. Coloured light blue with white markings.
- b. Filled with a small, black powder charge.
- c. Made of cast iron and has a plastic plug in the base.

12. The plastic plug is blown out with considerable force when the grenade is thrown. It can travel 18 metres and it could cause injury to anyone within that radius from the point of burst.

13. This grenade is to be handled and thrown with all the care and regard for safety that is accorded to a live HE grenade.

14. In training, before each training period begins grenades are to be removed from containers and examined to ensure that they are practice grenades.

Removing Grenades from Containers

15. *Explain and Demonstrate with the Squad Imitating the Instructor.*

a. Hold the container with the top up and remove the lid. The grenade should be in the lower half of the container with the fuze up and the safety pin in place. If the grenade is bottom up and the safety pin is not in place, or not visible, **NO ATTEMPT MUST BE MADE TO REMOVE THE GRENADE FROM THE CONTAINER.** It is to be left in its container until it is inspected by an Ammunition Technical Officer.

b. Slide the thumb over the safety lever and hold it down until the grenade is lifted clear of the container. Check that the safety pin is widely splayed. This prevents accidents from occurring due to damaged safety pins or safety levers.

WARNING: Once a pin has been pulled the grenade must be thrown. **NO ATTEMPT IS TO BE MADE TO REPLACE A PIN TO RESTORE A GRENADE TO A SAFE CONDITION.**

Carriage of Grenades

16. *Explain and Demonstrate, with the Squad Imitating the Instructor.* Grenades may be carried on the ammunition pouches; web pockets and button straps are attached to the sides of each pouch for this purpose. Under no circumstances is any type of grenade to be carried suspended by the safety pin pull-ring.

17. *Practice the Squad.* On completion, replace the grenades in the containers.

Mechanism

18. *Explain.* The grenade is issued ready to be thrown. When the safety pin is removed, the safety lever will fly free unless it is held down by the thrower's thumb. When the safety lever is released it is forced out and away from the grenade body by the striker spring. The striker continues swinging in an arc and hits the primer. This ignites the delay element, which burns for four to five seconds, and sets off the detonator which in turn detonates the explosive filling.

19. Questions from and to the squad.

Packing

20. *Explain.* The M26 grenade is packed in a fibre-board container, sealed with yellow adhesive tape. Twenty-five containers are packed in a Case, Wood Packing with a total weight of 51 lb. The case is a natural wood colour with a broad yellow band painted around it.

21. Questions from and to the squad.

Additional Safety Precautions

22. *Explain.* During training the following precautions will be taken when throwing grenades:

- a. Only one man is to throw at a time.
- b. No man is to throw without a direct order.
- c. Grenades are never to be thrown from man to man.
- d. No man is to attempt to catch a grenade.
- e. No man is to pick up a grenade that has been thrown, until ordered to do so.

23. Question the squad.

Holding the Grenade (See Figure 3)

24. Explain and demonstrate that for greater accuracy and range, the grenade must be gripped properly. Cradle it in the fingers of the throwing hand. Hold the safety lever down firmly under the thumb between the tip and the first joint. (A left-handed thrower should grasp the grenade in the same manner, but with the top of the fuze pointed down). It may be necessary to spread the fingers slightly to obtain the maximum grip on the grenade. Place the forefinger of the throwing hand near the top of the grenade body. Hook the forefinger of the other hand through the ring of the safety pin.

25. Practise the squad holding the grenade.

Throwing the Grenade

26. *Explain.* The average soldier can throw this grenade approximately 40 metres. Throwing motions are not limited to hard and fast rules because no two men throw alike. Although a throwing motion that is most natural to the soldier may be used, the best results are usually obtained by throwing the grenade like a cricket ball or a baseball. For short distances, the grenade may be lobbed by using an underhand bowling motion. Longer distances need the full power of the thrower's arm and body. In most instances, position, the amount of cover, and the range to the target, will dictate which method of throwing is best. The basic throwing positions are the standing, kneeling, and prone.

27. *Explain and Demonstrate, with the Squad Imitating the Instructor.* To throw the grenade from the standing position:

- a. Half-face the target with the weight balanced equally on both feet. Hold the grenade chest high.
- b. Remove the safety pin with a twisting, pulling motion. Move the throwing arm to the rear.
- c. Throw the grenade with a free, natural motion. As it leaves the hand, take a step forward with the rear foot to follow through.
- d. Observe the probable point of strike and then move behind cover to avoid fragmentation or other effects.

28. Practise the squad in throwing the grenade from the standing position.

29. *Explain, and Demonstrate.* To throw the grenade from the kneeling position.

- a. Half-face the target and kneel on the knee nearest the target. Extend and slightly bend the other leg to the rear. Hold the grenade chest high.
- b. Remove the safety pin as previously taught.
- c. Throw with a natural motion. Push with the rear foot to give added power to the throw.
- d. When the grenade is released, fall forward to a prone position, breaking the fall with hands and arms.
- e. Observe the probable strike and then move behind cover.
- f. It is not possible to follow through with the rear foot.

30. Practise the squad in throwing the grenade from the kneeling position.

31. *Explain, and Demonstrate.* To throw the grenade from the prone position.

a. Lie on the back with the body at right angles to the thrower — target line and the throwing arm away from the target. Hold the grenade chest high as in the standing position.

b. Remove the pin as previously taught.

c. Throw the grenade as follows. Brace the right leg (left leg for left-handed throwers) with the foot against the ground. Try to maintain a low silhouette. Bring the throwing arm back, either straight to the rear or over the rear shoulder. At the same time, hold on to any substantial object within reach of the free hand. This will improve the accuracy and distance of the throw. Throw the grenade, pushing with the rear foot. As the grenade is released, roll over on to the stomach.

d. Observe the probable strike and then move behind cover.

32. Practise the squad in throwing the grenade from the prone position.

33. *Explain.* When the height of the cover permits, a thrower should kneel up quickly from the prone position to throw the grenade. When the grenade is released observe the probable strike and move behind cover.

34. *Practise the Squad.* Minimum exposure and accuracy of aim are the important things to stress.

Lobbing the Grenade

35. *Explain and Demonstrate.* For short throws under low hanging tree limbs or into pillbox embrasures and other openings close to the ground throw the grenade with an underhand motion. Hold the grenade as previously taught. When lobbing the grenade, let it roll off the finger tips like pitching a softball. Fall forward to a prone position and watch for the probable strike of the grenade; then move behind cover.

36. Practise the squad in lobbing the grenade.

Conclusion

37. Questions from and to the squad.

38. Final practise of weak points.

39. Sum up.

LESSON 2 — FIRING THE M26 GRENADE

INSTRUCTOR'S NOTES

Aim

40. To teach the method of firing the M26 grenade from the L1A1 rifle.

Stores

41. Rifles, launchers grenade L1A2, face masks. Each member of the squad should have:

- a. Two M30 grenades.
- b. Two adaptors grenade projection M1A2.
- c. Drill cartridges.
- d. Drill grenade cartridges.
- e. Diagram of a correct aim.

Instructional Knowledge

42. If preparation of rifles for grenade firing has been taught to the squad in an earlier period on the No 94 Grenade do not teach it again. Include it in the revision for the period.

43. Words of command when practising loading and unloading are "GRENADE — LOAD" and "WITHOUT FIRING — UNLOAD". Safety pins are to be pulled from grenades only when firers are on the firing point. At other times the action is simulated.

44. This lesson should be taught in an area suitable for firing practice grenades. On completion each member of the squad should fire two M30 grenades.

Firing Practice Grenades

45. Live grenade cartridges must be kept in a special container, away from the squad, until they are required.

Procedure for Firing

- 46.
- a. Organize the squad into details facing the firing area. The gas plug setting of rifles must be checked.
 - b. The instructor demonstrates the firing of a practice grenade.
 - c. Waiting details move five metres behind the firing point.

d. Each firer is checked carefully to ensure that he holds the rifle firmly with both hands; particularly with the right hand on the pistol grip, and that his face is always well clear of the rifle.

e. Words of command for the conduct of firing are:

"No 1 READY" (Load).

"No 1 FIRE" (Remove safety pin, safety catch to fire, aim and fire).

"No 2 READY".

"No 2 FIRE".

"UNLOAD — INSPECT RIFLES".

"DETAILS CHANGE", etc.

Periods

47. Two 40-minute periods are required to teach this lesson.

CONDUCT OF THE LESSON

Preliminaries

48. Normal safety precautions are to be carried out on all rifles, drill cartridges, grenades, grenade cartridges and pouch equipment.

Revision

49. Practise the squad in carrying out safety precautions on grenades.

Approach

50. The Adaptor Grenade Projection M1A2 and the L1A2 Launchers are used to fire grenades from the rifle. Grenades can be projected up to 160 metres. Firing grenades is a useful technique in house to house fighting, for penetration of the jungle canopy, and for searching out targets in dead ground.

Description of Launcher and Sights

51. *Explain.* The launcher fits on to the rifle and supports the grenade and adaptor. At one end it has a catch to secure it to the rifle. At the lower end of the launcher is a spring clip which fits into the tail tube of the adaptor and prevents it from slipping off.

52. The sight is attached to the launcher and can be raised and lowered as required. It has three semi-circular rings which indicate ranges of 50, 75 and 100 metres.

Fitting the Launcher to the Rifle

53. *Explain and Demonstrate with the Squad Imitating the Instructor.*
To prepare the rifle for firing grenades:

- a. Unload the rifle. Leave the magazine off.
- b. Turn the gas plug so that the recess on the top face is underneath. This cuts off the supply of gas to the cylinder.
- c. Slide the launcher over the flash hider to engage the catch with the bayonet standard.
- d. Raise the sight.

54. To remove the launcher, lower the sight, press in the catch and slide it off the flash hider. Re-position the gas plug for firing ball ammunition.

55. *Explain.* Although it is safe to fire ball ammunition through the launcher when the grenade is removed, this is to be done only in emergency and at close ranges because of the enlarged grouping capacity of the rifle. *Stress that the firer may be killed should he be foolish enough to fire ball when a grenade is on the launcher.*

Description of the Adaptor M1A2 (See Figure 4)

56. *Explain.* The adaptor fits over the L1A2 launcher. It consists of a fin assembly, a stabilizer tube and three claws made of sheet metal. One claw is longer than the others and is fitted with an arming clip and an arming clip retainer. The clip is a metal sleeve loosely attached to the long claw on which it is held by the arming clip retainer.

Fitting the Grenade to the Adaptor

57. *Explain and Demonstrate with the Squad Imitating the Instructor.*
The grenade is fitted into the adaptor before it is placed on the rifle.

- a. Check that the safety pin is secure in the grenade.
- b. Insert the safety lever into the arming clip and force the seam of the grenade under the retaining ridge of the long claw of the adaptor.
- c. Force the grenade into the adaptor until the other two claws grip the grenade on top of the seam.
- d. Ensure that the bottom of the grenade is seated against the base of the adaptor.
- e. Check that the safety lever fits tightly under the "T" of the fuze. If it is a loose fit destroy the grenade as a blind.

58. Practise the squad in fitting grenades to adaptors.

Functioning

59. *Explain.* After the safety pin is removed from the grenade the safety lever is held in place by the arming clip. On firing, due to inertia, the clip tends to remain in place. It strikes the small extension at the base of the arming clip retainer. The force exerted by the clip breaks the brittle extension and allows the clip to fall free. The safety lever flies off and allows the fuze to function. The grenade will explode after the normal delay.

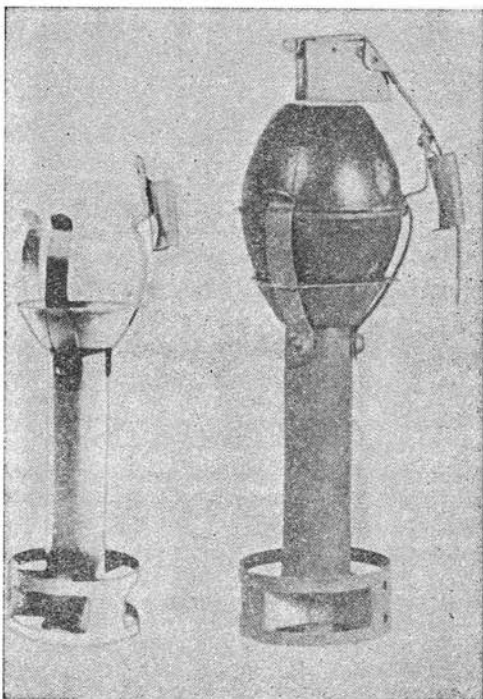


Figure 4 — The M1A2 Adaptor

Loading

60. *Explain and Demonstrate with the Squad Imitating the Instructor.*

To load with the M26 or M30 grenade (fitted to an adaptor):

- a. Prepare the rifle as described in Paragraph 53.
- b. Ensure that the arming clip retainer is not broken.

- c. Slide the tail tube of the adaptor over the launcher. Make certain that it goes home fully and that the striker lever is underneath. The adaptor should then be eased forward and backward to ensure that it is free on the launcher.
- d. Pull back the cocking handle. Push up the release catch. Hand feed the grenade cartridge into the chamber through the ejection opening. Do not allow the rifle muzzle to drop below the horizontal.
- e. Pull back the cocking handle and release.
- f. Check that the safety catch is at "S".
- g. Hold the grenade steady with the left hand and remove the safety pin from the grenade with the right hand.

Note. *After a grenade cartridge has been chambered, always keep a rifle fitted with a grenade pointing above the horizontal.*

61. If, when the pin is removed from the grenade, the safety lever flies off or the striker rotates under the safety lever, immediately put the safety catch to "R" point the rifle at the target area and fire. No attempt is to be made to remove the grenade from the launcher in any other way.

Unloading Without Firing

62. *Explain.*

- a. Check that the safety catch is at "S".
- b. Remove the grenade and adaptor from the launcher; place it down carefully.
- c. Unload the grenade cartridge, move the safety catch to "R" and press the trigger; remove the launcher and re-set the gas plug for firing ball.
- d. Load with ball.

Note: If the grenade subsequently cannot be fired from this position destroy it as a blind.

Practise the squad in loading and unloading, and with a grenade loaded.

Aiming

63. The standing position in the open is taught for ease of instruction in the basic principles of holding the rifle.

64. *Explain and Demonstrate with the Squad Imitating the Instructor.* Place the feet and body in the "on guard" position. Place the rifle butt under the right arm. Hold the pistol grip firmly. Place the

forefinger on the trigger and the left hand on the hand guard. Hold the head up and back with the face clear of the rifle so that the sights can be aligned correctly. Put the safety catch to "R" and aim as follows:

- a. At ranges up to and including 100 metres, align the centre of the top curve of the grenade with the top of the appropriate sight ring and the point of aim.
- b. At ranges between 100 and 150 metres the firer must use the 100 metre sight ring as a guide and then elevate the grenade slightly above the curve. Accurate results when using this method will only be obtained with practice.

Firing

65. *Explain and Demonstrate.* When the aim is correct operate the trigger. Keep the rifle steady.
66. If a misfire occurs load immediately with another grenade cartridge.
67. After firing, move behind cover and watch for the burst. If the grenade is a high air-burst or misses the target, correct the aim and fire another grenade.
68. If the grenade lands on hard, open ground, particularly at shorter ranges, it tends to skid and bounce. On soft ground or in thick cover the grenade is less likely to bounce.
69. Practise the squad in firing M30 grenades.

Low Air-burst Firing

70. *Explain.* The technique of firing a low air-burst over enemy troops in the open is a useful one to develop. The aim is to get the grenade to burst just above the target. Correct height of burst is obtained by altering the elevation of the rifle. Accuracy with this method of firing will depend on the amount of practice given to the firer.

Conclusion

71. Questions from and to the squad.
72. Sum up.

LESSON 3 — FIRING GRENADES — BUTT RESTED

Paragraphs 73 – 85 **Reserved.**

LESSON 4 — THE M34 WP SMOKE GRENADE

INSTRUCTOR'S NOTES

Aim

86. To teach recognition, throwing and firing of the M34 WP Smoke Grenade.

Stores

87. A diagram of the M34 grenade to show colour markings and a container for the grenade. (See Figure 5).

Instructional Knowledge

88. The M34 grenade is thrown and fired in the same way as the M26 grenade. Do not teach any detail that the squad should know. Check by question and answer.

Periods

89. One 40-minute period is required to teach this lesson.

CONDUCT OF THE LESSON

Preliminaries

90. Normal safety precautions are to be observed on any stores to be used in this lesson. Explain paragraph 15, Lesson 1.

Approach

91. This is a bursting type white phosphorous smoke grenade used to produce an instant local smoke screen, to cause casualties, or to set fire to inflammable objects.

Description

92. The body of the M34 grenade is cylindrical with the bottom tapered to enable it to be fitted into the M1A2 grenade projection adaptor. It is grooved sheet metal which breaks up easily when the grenade is detonated. It contains twelve ounces of white phosphorous. The complete grenade weighs 27.2 ounces.

Recognition

93. *Explain.* The M34 grenade is coloured grey to show that it is a chemical type grenade and has yellow markings "SMOKE WP BURSTING TYPE". A yellow band is painted around the body below the markings.

94. The grooving on the body and the tapered base enable the grenade to be easily identified at night.

95. Question from and to the squad.

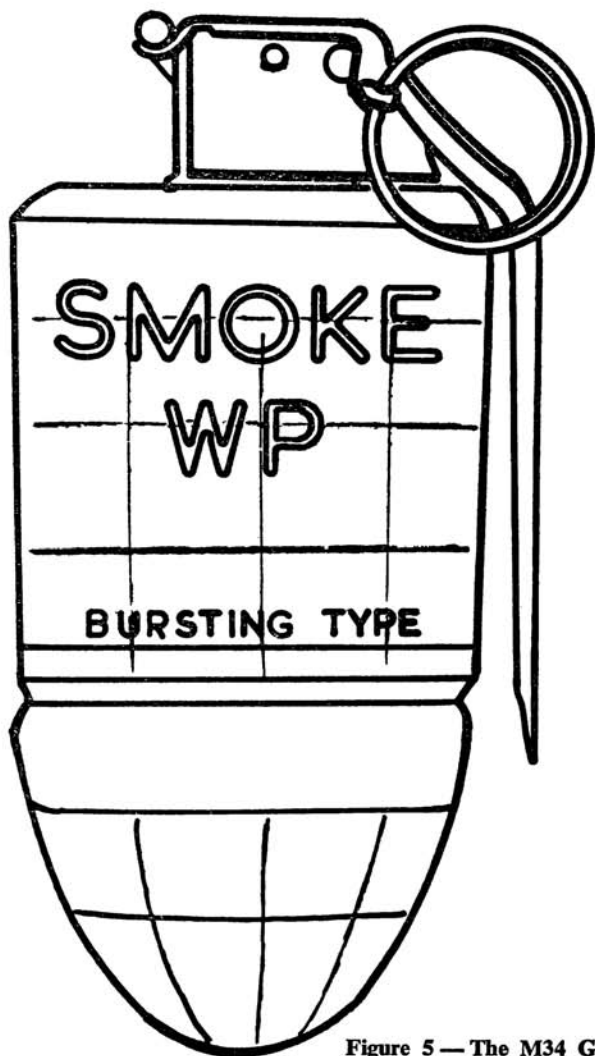


Figure 5 — The M34 Grenade

Mechanism

96. *Explain.* This grenade is issued ready to be thrown. Its mechanism is similar to, and operates in the same way, as the mechanism of the M26 grenade. The delay element burns for four to five seconds and sets off the detonator which bursts the body of the grenade and spreads particles of white phosphorous which burn when they come into contact with the air. The phosphorous burns at a very high temperature and gives off a dense white smoke.

Packing

97. *Explain...* The M34 grenade is packed in a fibre-board container sealed with adhesive tape. The containers with grenades are packed in a Case, Wood Packing with a total weight of 40 lbs.

Capabilities

98. *Explain.* The average soldier can throw this grenade about 35 metres. The effective casualty radius is 25 metres, but pieces of phosphorous may be thrown up to 46 metres from the point of burst. The phosphorous will burn for about one minute and ignite any inflammable substance that it touches.

99. Questions from and to the squad.

Throwing the Grenade

100. *Explain.* The M34 grenade is thrown in the same way as the M26 grenade. The thrower must ensure that he and others of his group have adequate cover from the effects of phosphorous and fragments of the body of the grenade. Because particles of phosphorous may be thrown up to 46 metres from the point of burst, and fragments of the grenade up to 74 metres, splinterproof cover which provides overhead protection must be used as a throwing bay.

101. Questions from and to the squad.

Firing the Grenade

102. The drill for firing the M34 grenade from the L1A1 rifle is the same as the drill for firing the M26 grenade. Firers will require practice to achieve accurate results. Firing must be conducted from behind cover which also provides overhead protection.

103. Questions from and to the squad.

104. Sum up.

LESSON 5 — THE 36 GRENADE

INSTRUCTOR'S NOTES

Aim

105. To teach the recognition and preparation for use of the 36 grenade.

Stores

106. a. For the instructor and each soldier:

- (1) Drill grenade.
- (2) Drill igniter set.
- (3) Drill 7.62 mm round.
- (4) Cleaning rag.

b. For the instructor:

- (1) Instructional grenade;
or
- (2) Diagram showing mechanism.

Instructional Knowledge

107. The first safety precaution, as taught in this lesson, is to be carried out always under the supervision of the instructor at the start of every 36 grenade training period.

108. There are two types of igniter set in service for the 36 grenade. These are:

- a. *Four-second.* White fuze with a rubber band or paper ring around it for night identification.
- b. *Seven-second.* Buff coloured fuze with NO band or ring around it.

109. The igniter set with the four-seconds fuze is the only type that is used when the grenade is thrown. The seven-second type was designed for use when the grenade was fired from a rifle. The seven-second igniter set has not been withdrawn from service, but it is not issued to units. It is not possible to fire the 36 grenade from the Self-Loading Rifle.

110. A live 36 grenade is deep bronze green in colour. Grenades of earlier manufacture are either light or dark brown. The instructor must teach the standard colour of deep bronze green, but need not refer to the other colours unless his own unit has on issue grenades of such colours.

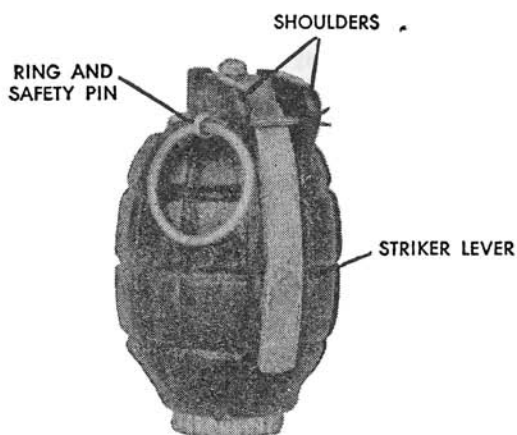


Figure 6 — The 36 Grenade

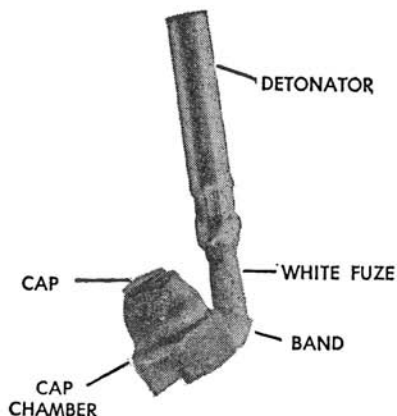


Figure 7 — The Igniter Set for the 36 Grenade

CONDUCT OF THE LESSON

Preliminaries

111. Give each man a grenade, a drill round and a cleaning rag. Igniter sets are not issued until required in the lesson.

The First Safety Precaution

112. Explain that before the 36 grenade is used it must be examined to make sure that it is not primed. With the squad imitating, show how this is done by unscrewing the base plug and looking inside to see that there is no igniter set in it.

Approach

113. The 36 grenade is a high explosive anti-personnel grenade. It will kill or cause wounds up to 20 metres from the point of burst. On hard, flat, open ground which offers little obstruction to the fragments of the grenade, this danger area may increase to about 250 metres. The grenade is useful for clearing enemy from slit trenches, dugouts and buildings. It can also be used for all types of close quarter battle, clearing woods, street fighting, ambushes and night fighting. Whenever the grenade is used, the thrower must ensure that other men of his section or platoon are under cover or lying down when the grenade is thrown.

114. This lesson teaches how to recognize a live 36 grenade and how to prepare it for throwing.

Description (See Figure 6).

115. The grenade has a grooved cast iron body filled with high explosive. The grooves help to ensure the complete fragmentation of the grenade on explosion. In the centre there are two sleeves, the middle one for the striker and spring, and the other for the detonator. The striker and spring are held up in position by the striker lever which is fitted into a slot at the top of the striker. The lever is secured to the grenade by a safety pin which passes over it and through holes in the shoulders of the grenade. The grenade weighs 1½ lbs.

Recognition

116. A live grenade is recognized by its deep bronze green body, (or light or dark brown body) with a red band or series of crosses painted round it. The grooving on the body enables it to be identified at night.

Preparation Before Priming

117. The grenade must be inspected, cleaned, and tested thoroughly before it is used, to ensure that it will work correctly. This preparation includes the inspection and cleaning of the outside and inside of the body and its parts and also a striker test.

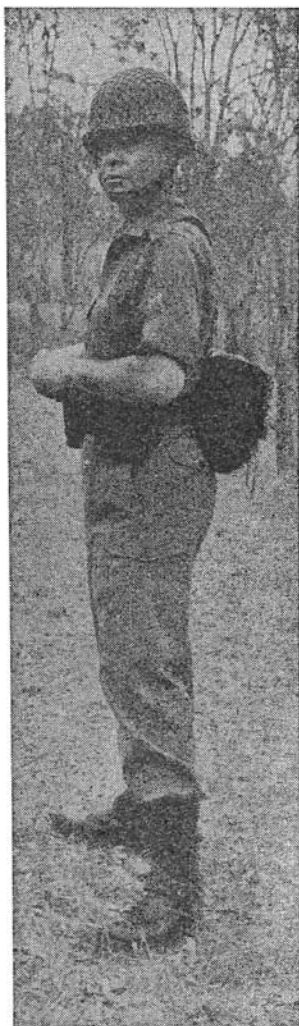
118. *Explain and Demonstrate*, with the squad imitating the instructor, how preparation is carried out.

119. *Examine the Outside of the Grenade.* The lever must be checked to see that it is firm in the striker slot, and that it does not stick out too far from the body; if it does, it must be bent to fit better when the grenade is stripped. See that the shoulders of the grenade are neither broken nor cracked and that the safety pin and ring are sound.

120. *Stripping.* To strip the grenade the base plug is removed, the points of the safety pin closed, and keeping the lever under control with the fingers, the pin is pulled out. Holding the open end of the grenade against the body, allow the lever to come up under control: the striker and its spring can now be shaken out.



SIDE VIEW



FRONT VIEW

Figure 8 — The Ready Position (Thrower looking towards his target)



Figure 9 — The Throwing Action

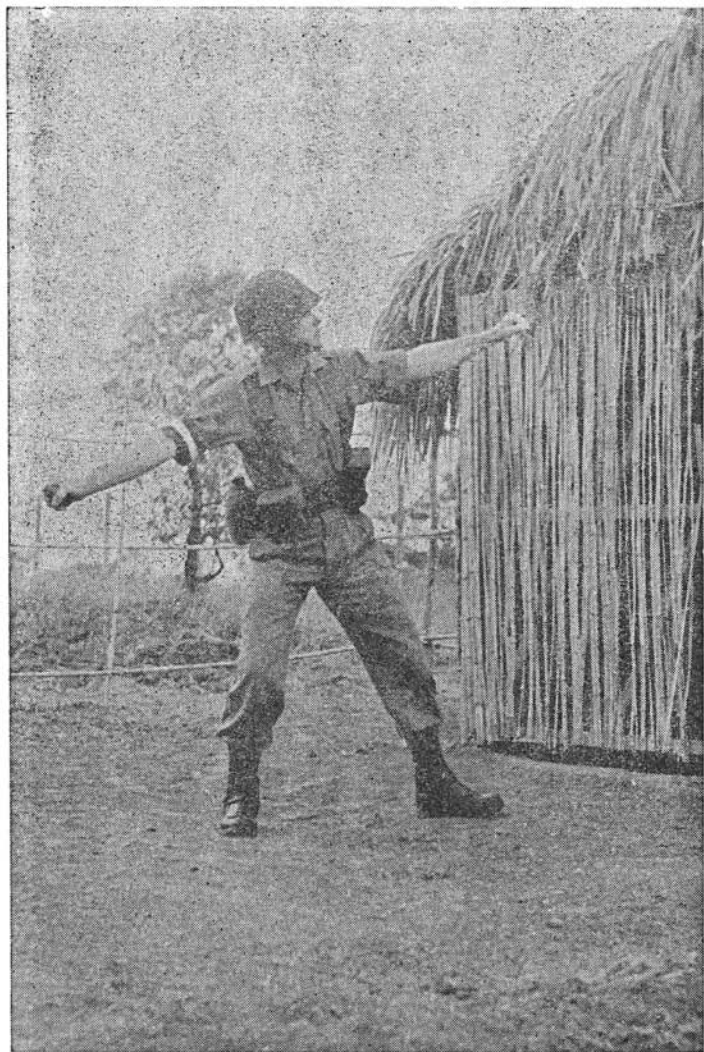


Figure 10 — Throwing from High Cover

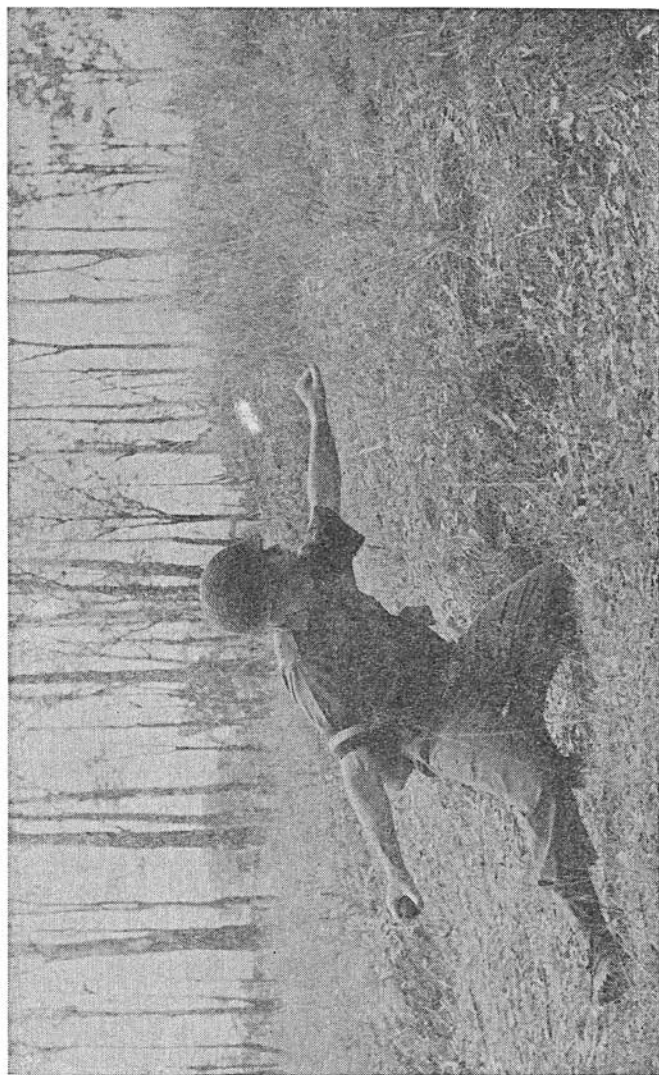


Figure 11 — Throwing. Lying Using Cover

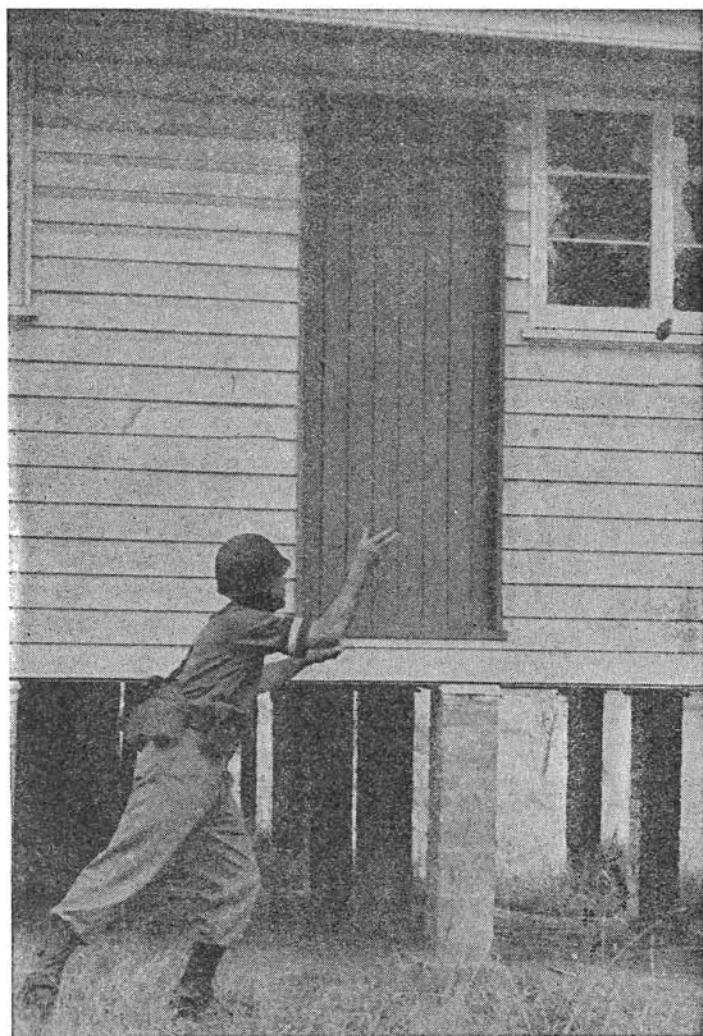


Figure 12 — Lobbing Through a Window

121. *Cleaning.* To help the striker to work correctly in its sleeve, all wax should be cleaned off the body, round the top of and inside the striker sleeve and from the striker and spring. The striker must be straight and at its base have two lugs and the gas escape slot between them.

122. *Assembling Before the Striker Test.* The striker and spring are placed in the centre sleeve, with the slot at the top of the striker towards the shoulders. Using a round, bullet first, or the base plug key, the striker is forced upwards through the hole in the top of the grenade and the lever placed in the slot and held down firmly.

123. *The Striker Test.* Hold the open end of the grenade against the waist belt or body and release the lever without trying to control it. This will show if the striker is free in the body and whether the spring will force it down hard enough to set off the cap in the igniter set. If the striker moves sluggishly or jams, either the cleaning has not been done properly or there is some other fault in the grenade. In the latter case the grenade should not be used.

124. *Final Assembling.* In the final assembly of the grenade, the striker, spring and lever must be replaced as already taught. With the lever held down firmly by the fingers, and the filling screw towards the body, the pin should be replaced from right to left if the thrower is right handed or from left to right if he is left handed. The points of the pin are then splayed out slightly. If they are splayed out too much there will be difficulty in pulling out the pin and the ring may be broken off. Finally, the base plug is replaced.

125. Practise the squad in stripping, cleaning, testing, and assembling the grenade.

126. If this lesson is taught in two periods, this stage of the lesson should be the end of the first period.

The Igniter Set

127. *Description* (issue drill igniter sets). The igniter set is used to explode the grenade. It consists of a percussion cap held in a chamber, a short length of safety fuze bent into a U shape and a detonator (See Figure 7). The fuze burns for four seconds.

128. The set must be handled carefully; held by the fuze and cap chamber. It must never be struck or crushed. It must be kept away from heat and not allowed to become damp. No attempt is to be made to strip down any part of the igniter set.

129. *Recognition.* The shape of the igniter set identifies it as being made for the 36 grenade. The fuze is white and has a rubber band or paper ring around it. This band must not be removed as it is there for night identification.

130. *Inspection.* See that the hole in the centre of the percussion cap is covered and sealed. The cap chamber must be sound. The detonator and cap chamber must be firmly attached to the fuze.

Priming the Grenade

131. To prepare the grenade for priming first remove the base plug. The detonator sleeve must then be inspected to ensure that it is free from any obstruction and has no rough edges. Hold the igniter set by the cap and fuze between the forefinger and thumb, squeeze them very gently together to ensure that they will go into the grenade easily. The detonator is then inserted carefully into its sleeve and the cap chamber pushed in as far as it will go.

132. If for any reason the igniter set cannot be inserted easily into the grenade, both should be rejected. The base plug is replaced and screwed up with the base plug key.

Unpriming the Grenade

133. To unprime the grenade, the base plug is removed and the igniter set carefully taken out and replaced in its box. Replace the base plug.

134. Practise the squad in priming and unpriming the grenade.

Mechanism

135. *Explain and Demonstrate, Using either an Instructional Grenade or a diagram, how the Grenade Explodes.* When the pin is pulled out and the grenade thrown, the spring forces down the striker and at the same time causes the lever to fly off. The lugs on the striker hit the percussion cap and the flash caused ignites the safety fuze which burns for four seconds and sets off the detonator which in turn detonates the explosive filling.

136. Question the squad on the mechanism.

Packing

137. 12 grenades are packed in a wooden box marked "HAND 36 GREN". In each box there are twelve igniter sets. A base plug key is fitted on the inside of the lid of each box.

Conclusion

- 138. Questions from and to the squad.
- 139. Further practice if necessary on any weak points.
- 140. Sum up, and if training tests are to be taken at a later date, state the conditions given in Annex A.

LESSON 6 — THROWING THE 36 GRENADE

INSTRUCTOR'S NOTES

Aim

- 141. To teach the methods of throwing a grenade.

Stores

- 142. Two drill 36 grenades for the instructor and each man.
- 143. For high-angle throwing, a high wire should be used for preliminary practice; the description and details of construction of this wire can be found in Infantry Training Volume III Pamphlet No 33 Range Construction and Regulations (All Arms) 1965. Alternatively, grenades can be thrown over a wire or rope stretched between two trees.

Instructional Knowledge

- 144. This lesson applies to throwing the 36 grenade.

Ground

- 145. For the second part of the lesson, the ground chosen should have natural and artificial features to allow the grenade to be thrown and lobbed at different targets and from various positions.

Position of the Squad

- 146. The squad should be to the right of the instructor when watching grenade throwing or lobbing demonstrations.

Practice

- 147. The initial practice of the overarm throw should be carried out individually, to enable the instructor to watch each man in turn. The rest of the squad should practise the action without grenades.

Subsequent practice can best be given by dividing the squad into two, one half throwing while the other half criticizes, and then changing round. During this practice, time will be saved if pins are not actually withdrawn but simply the actions of doing so are carried out. Words of command to be used are "No. 1 (2, etc.) READY" and "THROW".

148. The following faults are common and must be corrected when practising the overarm throw:

- a. Loss of distance because the grenade is being released either before the hand reaches or after it has passed the highest point above the shoulder.
- b. The grenade falling wide because the shoulder is not kept in line with the target.

149. The instructor should not try to alter a man's style of throwing if he is achieving good results.

Left-handed Throwers

150. When describing positions for left-handed throwers, substitute "left" for "right" and vice versa.

Target Area

151. This must be indicated before throwing begins. Suggested distances for throwing are up to 30 metres standing and 15 metres lying. In the early stages of training, however, it is important to adjust these distances in accordance with individual throwing ability.

CONDUCT OF THE LESSON

Preliminaries

152. Make each man pick up two grenades and make sure that they carry out the first safety precaution. Explain that the following precautions are to be taken when throwing drill grenades:

- a. Only one man is to throw at a time.
- b. No man is to throw without a direct order.
- c. Grenades are never to be thrown from man to man.
- d. No man is to attempt to catch a grenade.
- e. No man is to pick up a grenade which has been thrown, until ordered to do so.

153. Number the squad and extend them to two-pace interval; point out the target area. Bring the squad round in a half circle for revision and give the approach; then send them back to their places.

Revision

154. Question the squad on the recognition of the 36 grenade, its preparation before priming, and its uses. (See Lesson 5).

Approach

155. Grenades can be thrown in many ways. With experience the thrower will be able to decide which method best suits any particular situation. For safety during recruit training the method used for throwing live grenades is an overarm throw similar to bowling a cricket ball. The advantages of this method are:

a. Because of the weight of the grenade it is easier for the average man to throw it in this manner.

b. The grenade will be less likely to roll, once it strikes the ground, than if it is thrown like a stone.

This lesson deals with this and some alternative methods of throwing.

Overarm Throwing

156. Explain that before throwing a grenade the thrower must get into the ready position.

157. *The ready position* (See Figure 8): The grenade is picked up and held in the right hand, using an overhand grip to ensure that the lever is held firmly in place by the palm of the hand or all of the fingers. The first or second finger of the left hand is placed through the ring of the safety pin. The grenade is held close to the body near the waist. The body is then turned to the right so that the left shoulder and foot are towards the target.

158. *The Throwing Action* (See Figure 9). The left arm is kept still and close to the body. By thrusting the right arm backwards and downwards, the pin is pulled out. The thrower must glance down at the grenade to make certain that the pin has come out. Look in the direction of the target and keep the left shoulder pointing in that direction. Swing the body backwards as far as possible, and allow the left hand to come up naturally. Then without any pause, the body and straight right arm are swung forward quickly, the grenade being released as the hand reaches its highest point above the shoulder. The fall the grenade must be watched.

159. *The practice of pulling out the pin, releasing the lever and counting one or two seconds before throwing the grenade is forbidden.*

160. Practice the squad in throwing over the high wire.

Throwing Using Cover

161. *High Cover* (See Figure 10). The overarm throw may be used in battle when cover permits. With high cover the thrower first carefully observes the enemy and then gets into the ready position. Making full use of the cover he throws the grenade, looks to see where it has fallen and gets under cover before the grenade explodes.

162. Practise the squad in throwing in the standing position from behind cover.

163. *Low Cover* (See Figure 11). If a grenade has to be thrown from behind a low bank or wall, first study the target as before. Keep well down behind cover and hold the grenade in the ready position. To throw the grenade press the body up with both hands, keep the left knee on the ground quickly swing the arm and body backward, then forward and throw the grenade. After throwing take cover.

164. Practise the squad in throwing from the lying position behind cover.

Lobbing and Throwing (See Figure 12)

165. *Explain.* When fighting in close country or in a built up area it may be necessary to lob a grenade through a window or door, or into some small target area. For accuracy the grenade will have to be lobbed from quite close range. If this is to be achieved the thrower must plan his approach to the target and ensure that he will have cover from the blast of the grenade as well as from enemy fire. The movement to a throwing position may be by stealth or by normal fire and movement.

166. If it is not possible to get close enough to a small target to lob, then an alternative is to throw the grenade like a stone. This will, with practice, give accuracy over greater distances than the lob. If this method is used it must be remembered that the weight of the grenade might strain the shoulder and also that the grenade must be gripped with the whole of the hand as taught and not just with the fingers.

Remember Two Things:

- a. The method of throwing is unimportant so long as the grenade lands in the required place.
- b. The throwing of a grenade will not necessarily kill all the enemy in a position. A quick follow up of a grenade by troops, while the enemy is still shocked, will often be required.

167. Practice the squad in throwing from various positions at different targets. Encourage the use of all methods of throwing.

Conclusion

168. Questions from and to the squad.

169. Further practice on any weak points.

170. Sum up, and if training tests are to be taken at a later date, give out the conditions given in Annex A.

LESSON 7 — THE 80 and 83 GRENADES

INSTRUCTOR'S NOTES

Aim

171. To teach the recognition, preparation, and uses of the 80 and 83 grenades.

Stores

172. a. For the instructor and each soldier:

- (1) Instructional 83 grenade.
- (2) Drill igniter set for 80 grenade.

b. For the instructor:

- (1) Diagrams showing grenade mechanism.
- (2) Containers for both types of grenade.

Instructional Knowledge

173. *Mechanism.* These two grenades are taught together as they have exactly the same striker mechanism described in detail under the 80 grenade. The instructor should explain this fact during his preliminaries.

174. *Markings, 80 Grenade.* The instructor must check on the type of 80 grenade issued in his unit before starting this lesson because different markings may be found. The current markings are given in the body of the lesson but any of the following denote that the grenade contains white phosphorous.

- a. The letters PHOS in black, $\frac{3}{8}$ inch high.
- b. A half-inch white band about two inches from the shoulders.
- c. The letters WP in black, $\frac{3}{8}$ inch high.
- d. The letters WP in white, $\frac{3}{8}$ inch high on both sides of the body.

Grenades filled before 1950 have no red filling band; early grenades are painted mid-green.

175. *Markings, 83 Grenade.* Early grenades have no red filling band, and are painted mid-green.

176. *Smoke Effect, Demonstration.* Where possible, the smoke effects of the grenades should be demonstrated as soon as convenient after instruction, but see Paragraph 177.



Figure 13 — Markings on the 80 WP Smoke Grenade

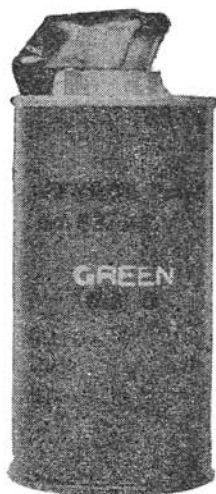


Figure 14 — The 83 Grenade (Coloured Smoke)

177. *Throwing, 80 Grenade.* The use of the 80 grenade is restricted on all tactical training, and the 83 grenade must be used in lieu. **THE 80 GRENADE MAY ONLY BE THROWN ON A RECOGNIZED GRENADE RANGE** (See Annex B), except during demonstrations and exercises sponsored by the School of Infantry, when the following conditions are to apply:

- a. During exercises they may be thrown by members of the Directing Staff only.
- b. During demonstrations they are to be thrown by an officer only or on the orders of and under direct supervision of an officer.

178. All those concerned are to be reminded of the danger of burns resulting from careless use of the 80 grenade and of the necessity for exercising extremely close control over these weapons.

179. *Instruction, 80 Grenade.* There are no instructional 80 grenades. Use must therefore be made of the photographs in this pamphlet. The actions of the safety precautions, priming and unpriming can be taught using the instructional 83 grenade, except for the actual insertion of igniter sets.

CONDUCT OF THE LESSON

Preliminaries

180. Issue stores and explain Paragraph 173.

THE 80 GRENADE

Safety Precautions

181. The mechanism holder is unscrewed and the detonator sleeve inspected to ensure that it contains no igniter set.

Approach

182. This is a bursting-type smoke grenade, used to produce an instant local smoke screen. In calm weather the smoke will last for 20 to 40 seconds. The grenade is also a powerful incendiary.

183. This part of the lesson teaches how to recognize the 80 grenade, and how to prepare it for throwing.

Description (See Figure 13)

184. The grenade has a tin-plate body, filled with white phosphorous. The mechanism holder is screwed into the top. The grenade weighs $1\frac{1}{4}$ lb.

Recognition (See Figure 13 and Paragraph 174)

185. The body of the grenade is coloured sea-green, with the usual red filling band. The current issue has the letters WP in white, $\frac{1}{4}$ inch high on both sides of the body. In black is stencilled GREN. No 80 Mk 1, also the filling mark and lot number.

186. By night the grenade is recognized by its tapered base.

The Igniter Set

187. The igniter set is basically the same as that for the 36 grenade, except that it is straight, and the fuze is coloured brown without any band. As with the 36 grenade, this igniter set must be handled with care and must NOT be held by the detonator. The fuze burns for two and a half seconds to four seconds.

Priming

188. Unscrew the mechanism holder. Ensure that the safety pin is firmly in position, with the ends slightly splayed. Inspect the detonator sleeve to make certain it is clear. Insert the igniter set, detonator first, and ensure that it is fully home. Screw on the mechanism holder.

Unpriming

189. Unpriming is the reverse of priming. The igniter set must be replaced in its packing as soon as possible after removal from the grenade.

Mechanism

190. The mechanism works on the same principle as a mouse trap. When the grenade is issued, the mechanism is already cocked. The striker is held down by the striker lever, which in turn is held by the safety pin. The striker lever is hooked over the front of the mechanism holder.

191. *Action.* When the pin is pulled out and the grenade is thrown, the striker spring causes the striker to throw off the striker lever. The spring pushes the striker over like the spring on a mouse-trap, and it strikes the cap of the igniter set. A flash is caused which ignites the fuze. The fuze burns and sets off the detonator. The detonator explodes, bursts the grenade and scatters the phosphorous. On contact with air, the phosphorous produces immediate smoke.

192. Question the squad on the mechanism.

Throwing

193. The methods of throwing are as taught in Lesson 5. The following points must be borne in mind:

- a. The phosphorous will be carried by the wind, so ensure that the area is clear of our own troops. In calm air the danger area is 40 metres from the point of burst, more in a wind.
- b. Phosphorous can cause very serious burns. Care must therefore be taken, when moving through the danger area after a burst, that no particles of phosphorous stick to the boots or clothing.

Packing

194. The grenades are packed in a steel box, 24 to a box, with 24 igniter sets. The type of grenade is marked on the box. Each grenade is separately packed in a sealed metal container, which must be opened with the key provided. The container must **ONLY** be opened by removing the metal sealing band. If any attempt is made to cut open the container by any other means, there is a risk that the grenade will be punctured, thus exposing the phosphorous to the air.

THE 83 GRENADE

Safety Precautions

195. This grenade is issued already primed. It contains no detonator, therefore the only safety precaution is to ensure that the safety pin is fully home, with the ends slightly splayed. The mechanism holder is not to be unscrewed.

Approach

196. This is an emission type of smoke grenade which does not burst. It produces coloured smoke: red, blue, green or yellow. It is

used for signalling to other infantry, tanks or aircraft. It is also used on tactical exercises and demonstrations in place of the 80 grenade. It can be used to produce a smoke screen, but the smoke takes some time to build up, and the burning time of a single grenade is only 25 to 45 seconds.

197. This part of the lesson teaches the recognition and use of the 83 grenade.

Description

198. The grenade has a tin-plate body, filled with the coloured smoke composition. There are four emission holes in the top of the body around the mechanism holder. These holes are covered with muslin. The mechanism holder is screwed into the top of the body. The base of the grenade is flat. The grenade weighs 1 lb.

Recognition (See Figure 14 and Paragraph 175)

199. The body of the grenade is coloured sea-green with the usual red filling band. On the grenade, in black, are stencilled GRENADE HAND, No 83, SMOKE, filling marks and the lot number. The colour of the smoke is also on the body. Grenades filled since 1950 have a red band painted half an inch from the top around the body.

Mechanism

200. The mechanism is exactly the same as that on the 80 grenade, but the smoke is produced differently. The igniter set has no detonator and the fuze is instantaneous. The striking of the cap ignites the fuze, which in turn ignites a primed muslin disc inside the body on top of the smoke composition. This ignites the composition. There is, therefore, a slight delay before the smoke builds up. The smoke comes out of the emission holes and lasts for 25 to 45 seconds.

Throwing

201. The methods of throwing are as taught in Lesson 6. **THE GRENADE MUST ALWAYS BE THROWN.** It is not to be placed in position by hand because any malfunctioning of the grenade would then result in injury. The direction of the wind must be taken into account.

Signalling

202. When using the grenade for signalling, always make sure that the person to whom you are signalling knows what colour smoke to expect.

203. When signalling to aircraft in jungle or heavily wooded areas, do not use green smoke — it may not be seen. Red is the best colour under these conditions. Similarly, do not use the yellow smoke in desert areas.

Packing

204. The grenades are packed in cardboard cylinders inside a steel box. There are 24 grenades to a box, and the type of grenade is marked on the box.

Conclusion

205. Questions from and to the squad.

206. Sum up.

LESSON 8 — THE TRIP FLARE

INSTRUCTOR'S NOTES

Aim

207. To teach the setting up and arming of a trip flare.

Stores

208. One trip flare for the instructor. If more than one trip flare is available the others may be used for squad practice after instruction.

Instructional Knowledge

209. To avoid injuries such as burnt hands, eyes and face, all armed trip flares which fail to ignite when they should, are to be regarded as blinds, and are to be destroyed using the method laid down for destroying blind 36 grenades [See Infantry Training Volume III, Pamphlet No 31 Range Work (All Arms).]

210. Whoever destroys trip flare blinds, is to:

- a. Disconnect the trip wire from the outer picket.
- b. Jerk the wire a few times to see whether ignition will take place.
- c. Hit the picket with the flare on it two or three times with a stick at least four feet long or a rifle with a bayonet fixed to it, keeping his head well away from, and if possible below the level of, the flare pot.
- d. If the flare fails to ignite, put the stick or bayonet underneath the flare pot, tip it off the picket, and destroy it where it lies. Do NOT move it.

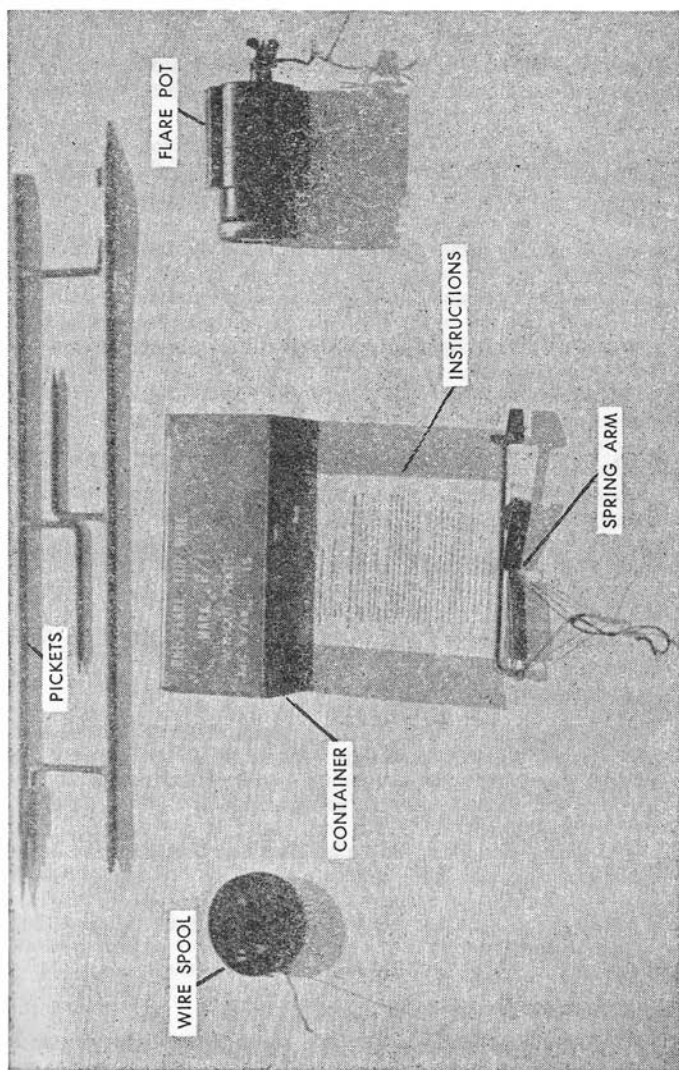


Figure 15 — Trip Flare Equipment

211. If a unit receives any package of trip flares Mk 2 and 2/1 without the word "Pinned" on it, it is to:

a. Segregate any such package and place it sufficiently far away from other ammunition so that if a flare ignites, the fire cannot spread.

b. Inspect each flare to ensure that the pivot screw is firmly in position. The pivot screw is the screw at the bottom of the pot that holds in position the end of the release clamp bar farthest from the safety pin.

c. Carefully remove and destroy any flare found with a loose or missing pivot screw and report to the ATO of the nearest Formation/Command HQ the number of flares so found.

212. Unpinned flares must be used first for training.

CONDUCT OF THE LESSON

Approach

213. Explain that flares are used at night to give warning of approaching enemy and to illuminate the area around them so that the sights of any weapon can be used. When set off the trip flare gives a very bright light which will illuminate the area around it for approximately a minute and a quarter.

214. This lesson teaches how to set up and arm a trip flare for use.

Equipment (See Figure 15)

215. The equipment consists of two sharpened metal pickets, a metal arm with a spring and wire clamp attached to it, a 20 metre length of wire on a spool and a pot containing the flare. Instructions for using the trip flare are packed with the equipment.

216. The flare pot is black plastic and has an olive drab top. Around the top is painted a red filling band to warn that the contents are live.

217. Except for the pickets, all the equipment is packed in a cardboard box, which is contained in a brown painted tin.

Safety Precautions in Handling

218. Trip flares must be handled carefully whether packed in their containers or not, as rough handling may cause a flare to ignite, start a serious fire and severely burn anyone near it.

Setting Up the Flare

219. *Pickets.* The pickets are driven into the ground, one at each end of the area to be covered by the trip wire. The side prongs of the pickets must face inwards and the bottom side prongs are driven into the ground.

220. *The Spring Arm.* This is placed on the main post of the picket that is to hold the flare pot. It extends away from the run of the trip wire and must lock against the picket to prevent it turning when the trip wire is fastened to it.

221. *The Wire Spool.* The pin is removed from the spool. The ring at the end of the wire is passed over the main post of the picket without the spring arm. One or two turns of the wire should be made over the side arm to ensure that the ring does not slip as the wire is being reeled out. The wire is then run out until it reaches the spring arm, where it must be passed around the clamp on the spring arm. The wire must be drawn tight until the spring is extended to the limit of the spring links and then the wire is secured by tightening the clamp wing nut. If all the trip wire has not been used, the pin is replaced in the spool to prevent the wire unreeling further. The spool is left at the base of the spring arm picket.

222. *The Flare Pot.* The pot is placed on the picket carrying the spring arm by sliding it between the main post and the side arm. The wing nut under the flare pot is then unscrewed. After making certain that the string on the flare safety pin is clear of the clamp, the wire is passed into the jaws of the clamp and the nut is tightened.

223. Practise the squad in setting up trip flares.

Arming

224. The safety pins are to be removed in the following order to arm the trip flare:

- a. First, from the spring links.
- b. Secondly, from the flare pot.

Emphasize that they must always be removed in that order. When doing so the operator is not to lean over the flare pot. He must keep his head away and below its level.

Action

225. Explain and demonstrate how the flare is ignited by the wire being cut, walked into or pulled.

226. If trip flares are available, practise the squad in arming and igniting the trip flare.

Conclusion

227. Questions from and to the squad.

228. Sum up.

LESSON 9 — THE THUNDERFLASH

INSTRUCTOR'S NOTES

Aim

229. To teach the safety factors affecting the use of the thunderflash.

Stores

230. One thunderflash for the instructor.

Instruction

231. This lesson should only be taught to those who are expected to handle thunderflashes. It may be given either as a lecture to a large class, for example, an NCO cadre or as a lesson to a small squad. Whatever the method employed, the safety regulations laid down in the following paragraphs are to be strictly observed.

CONDUCT OF THE LESSON

Approach

232. The thunderflash is an explosive firework used during exercises and demonstrations to simulate mortar or shell fire or grenades. It is a powerful explosive and can cause injuries to men and considerable damage to equipment but is safe if properly used.

233. The aim of this lesson is to teach the correct and safe use of the thunderflash.

Description

234. *Explain.* The thunderflash consists of a cardboard cylinder sealed at one end and open at the other. The sealed end contains the explosive. A length of safety fuze with a striker head is attached to the body. A striker is also attached to the body. The whole thunderflash is covered with paper, concealing the fuze and the striker.

Preparation

235. *THE THUNDERFLASH IS ALWAYS TO BE HELD BY THE OPEN END.*

236. When the thunderflash is required for use, and not before, the white tape at the sealed end is pulled. This tears the paper, frees the striker, and exposes the striker head of the fuze.

Igniting

237. To ignite the thunderflash draw the striker firmly and sharply over the striker head. As soon as the head starts to burn, *THROW THE THUNDERFLASH IMMEDIATELY*. The fuze burns for four to seven seconds.

Safety

238. *Explain:*

a. Thunderflashes are to be thrown to explode at least 30 metres from other personnel. If they are used in house-clearing, wood clearing, or by night, particular attention must be paid to this point. The distance must be increased on stony ground.

b. Thunderflashes are to be stripped only when required for immediate use. They are not to be carried stripped. If a thunderflash is stripped but not used, it is to be destroyed. It is not to be returned to store.

c. Thunderflashes are to be ignited and thrown separately. They are not to be:

(1) Tied in bundles or sticks.

(2) Used for any form of demolition, mortaring and air-bursting.

(3) Placed in the barrels of weapons to simulate firing.

(4) Altered in construction.

(5) Weighted or filled in any way.

d. When throwing a series of thunderflashes the thrower is to count the explosions. Any blinds are to be located and destroyed immediately.

Additional Points

239. a. The thunderflash will explode under water.

b. There is a danger of fire if thunderflashes are used in dry grass or undergrowth.

Conclusion

240. Questions from and to the squad.

241. Sum up.

**LESSON 10 — HAND HELD FLARES
RESERVED.**

TRAINING TESTS

Aim

1. To determine the standard of a man's training.

Dress

2. Battle order.

Conditions

3. Before testing a man, explain the test to him and let him ask questions. Once the test begins, do not assist him. Always tell him the result of the test and correct any errors made.

Test No 1: 36 Grenade. Preparation

Conditions

4. Each man is given a drill 36 grenade and a drill igniter set which he has to prepare for throwing.

Standard

5. The correct sequence of preparation must be carried out.

Note for Instructors

6. The sequence of actions is given below. Certain stages are practical, but in others the instructor must question the man on his actions:

- a. First safety precaution — Practical.
- b. Examine outside of grenade — Question.
- c. Cleaning — Question.
- d. Striker test — Practical.
- e. Examine igniter set — Question.
- f. Priming — Practical.

Test No 2: Throwing the M26 or 36 Grenade

Conditions

7. Each man is given six drill/practice grenades. The test is to be in three parts held consecutively.
 - a. Throwing from behind high cover at an enemy position in a ditch 20 metres from the cover.
 - b. Throwing around cover at an enemy post in a window seven metres from the cover.
 - c. Throwing from the lying position, behind low cover, at an enemy position in a hollow 15 metres from the cover.

Standard

8. Two grenades are to be thrown at each target and the throwers are to be graded as follows:

- a. Six grenades effective — Skilled.
- b. Five grenades effective — Above average.
- c. Four grenades effective — Passed.
- d. Three or less effective — Failed.

Test No 3: The 80, 83, and M34 Grenade**Conditions**

9. Two questions are to be asked on each grenade covering either the recognition, use, or method of priming.

Standard

10. All questions are to be answered correctly.

TRAINING WITH LIVE GRENADES

General

1. This annex sets out the procedure for conducting live practices with grenades. Pamphlet No 31, Range Work (All Arms) is to be read in conjunction with this annex.
2. Live practices give confidence to the soldier in handling a weapon. Grenades, quite mistakenly, are sometimes supposed to be dangerous material for live practices. Accidents can generally be traced to one of four main causes:
 - a. Ignorance.
 - b. Negligence.
 - c. Deliberate mishandling.
 - d. Fright.
3. The first three can be overcome by training and supervision. The last will be mastered through well controlled live practices.

The 36 Grenade

Throwing of Grenades by Recruits

4. Organization before practice begins. As an aid to the smooth running of each detail, a demonstration to show what each man must do during the practice should be given by the conducting officer and supervising NCOs. Stones may be used to represent grenades.
5. It is the duty of the officer conducting live practices to foresee the possible incidents that may occur, through nervousness or failure in the material being used, which are likely to endanger those taking part. He must instruct NCOs and men in the immediate action to be taken. For example, should a grenade be dropped in the bay in the act of throwing, the NCO is immediately to force the man behind cover round the traverse, before taking cover himself.
6. Sections are to be told off in details. Men are to be issued with the number of grenades they are to throw. After preparation before priming has taken place the men are to be sent into their shelters.
7. Supervising NCOs are then to take their places in the priming and throwing bays. Those detailed for the priming bays are to have with them the necessary number of igniter sets in their boxes.

8. The conducting officer is to take his place at the control point or post, taking with him the demolition box and any spare grenades. Having satisfied himself that all safety regulations have been observed, he is to lower the control post flag and order the first detail into the priming bays.

9. The first detail is then to prime their grenades, and pass on to the throwing bays on the conducting officer's order. The second detail is at once to take the place of the first in the priming bays.

10. Only those grenades which are to be used before the men return to the shelter are to be primed. Primed grenades are NOT to be taken into a shelter.

11. Should the practice be cancelled for any reason before all primed grenades have been used, the NCOs in the throwing or priming posts are to see that the unused grenades are unprimed. This rule does not apply to temporary stopping of a practice due to a blind.

Orders Given and Action Taken during Practice

12. When throwing practice is being carried out, the procedure is to be as follows:

Orders given by Conducting Officer

"No 1 — READY"

"No 1 — THROW"

Action taken by Supervising NCOs and throwers

No 1 adopts the ready position. The NCO is to hold up his hand as a signal to the officer when this has been done.

No 1 prepares the grenade for throwing, throws, and observes the flight of the grenade.

13. The conducting officer is to observe the actions of the thrower, the flight of the grenade and is to give the order "DOWN" as soon as the grenade is seen to have struck the ground. The NCO in the throwing bay is to give the order "DOWN" as soon as he sees the grenade strike the ground, whether he has received the order from the conducting officer or not.

"DOWN"

Thrower and NCO take cover.

"No 2 — READY"

"No 2 — THROW"

"DOWN"

14. If there are more than two bays, the procedure is to be the same until all have thrown one grenade. No 1 is then to be ordered to throw his second grenade. The same sequence is to be followed until all grenades have been thrown by the first detail.

"DETAILS — CHANGE"

First detail moves to the shelters. Second detail replaces the first in the throwing bays. The third detail moves into the priming bays.

Actions to be taken by Conducting Officer when a Blind Occurs

15. Should a blind occur, everyone is to remain under cover until further orders. After 15 minutes the officer is to make up a demolition set [See Pamphlet No 31, Range Work (All Arms)] and proceed alone to destroy the grenade where it lies. The grenade must not be disturbed. The officer is to make certain that his steel helmet and equipment are securely fastened on. No interval is necessary with grenades other than the 80, M34, 36 and M26.

Destruction of a Blind

16. The conducting officer is to make sure that all persons are under cover before he lights the fuze and takes cover himself. After the explosion he is to examine the place to ensure that the blind has been destroyed. It is essential that all blinds are destroyed as they occur.

Causes of Blinds

17. In most instances it is possible for the officer in charge to deduce the cause of a blind from the moment a grenade is thrown. With the 36 grenade, for example, if the mechanism is working correctly the following sequence of events should be noticed:

- a. The lever flies off.
- b. The sound of the cap being set off by the striker is heard.
- c. Smoke is seen issuing from the grenade, either in the air or on the ground.

18. If the grenade does not explode, the fault may lie in one of the following, or a combination of more than one fault:

- a. Failure of lever. Pin NOT withdrawn or lever jammed.
- b. Failure of striker mechanism. Faulty preparation.
- c. Fuze not burning. Faulty fuze or cap.
- d. Faulty detonator.

Correct preparation will obviate most of the above faults.

The M26 Grenade

Throwing of Grenades by Recruits

19. The procedure for conducting live practices with the M26 grenade is the same as that for the 36 grenade with the following exceptions:

- a. Grenades are to be issued to men when they move into the priming bays.
- b. The NCO in charge of the priming bay is to supervise the men in checking that the grenades they are to throw are in a safe condition.
- c. Igniter sets are not required. The grenades are issued prepared for throwing.

Causes of Blinds

20. The M26 grenade is smokeless, sparkless, and noiseless. It will, therefore, be impossible for the conducting officer to deduce the cause of a blind.

Conduct of Advanced Training

21. Normal grenade range safety regulations as laid down in Pamphlets 31 and 33 apply. The training can be run along similar lines to SLR or SMG Close Quarter Battle lanes; the thrower is given a line of advance and engages targets one after another along that line.

22. Soldiers are to be practised individually and the conducting officer only is to move with the thrower. Two NCOs are required, one in the waiting shelter and one in the priming bay. If there is a separate dispersal shelter, this is also to be supervised by an NCO.

23. In the early stages of this type of training, grenades are to be made ready and thrown only on the order of the conducting officer. He is also to give the order "DOWN" when the fall of the grenade has been observed. As the standard of training improves, the soldier may progress to the engagement of targets when seen, and eventually to individual field firing exercises with SLR and grenade.

24. A competition will add interest, but whether a competition is run or not the points to be covered in the debriefing of each individual are:

- a. Preparation and inspection of grenades.
- b. Use of ground during movement.
- c. Use of cover when throwing.
- d. Method of throwing.
- e. Accuracy.

25. Although it is not permitted to exercise more than one man at a time, each soldier must understand that he will seldom be required to use grenades on his own. He will normally be covered by fire from the remainder of his section. He must also remember, when engaging opportunity targets without orders from his section commander, that he is to give warning of such action by shouting "GRENADE".

Blinds

26. The conducting officer is responsible for the location and destruction of blinds. It is particularly important in the type of country suggested for this training that he watches where each grenade lands, and considers the requirement for this when selecting targets. The actions to be taken when a blind occurs are the same as for recruit training.

The 80 Grenade and M34 Grenade

27. The use of the 80 and M34 grenade is restricted on all tactical training. The 83 grenade is to be used in lieu. The 80 and M34 grenades are to be thrown only during training on a grenade range.

28. When demonstrating the smoke effect of these grenades, spectators must be well clear of the danger areas. This grenade easily sets fire to dry grass, in hot weather this incendiary effect must be anticipated. Blinds are not to be moved and are to be destroyed in the same way as the HE grenades. Throwers and conducting staff must be provided with protective cover — including overhead cover.

Recording and Reporting of Failures and Defects

29. All instances of defects and failures in material are to be recorded and, if it is considered that they are due to faults in design or manufacture, a report, as laid down in MBIs, is to be made. Such instances would be:

- a. Defects noted during the inspection of grenades and igniter sets.
- b. Failure of any portion of igniter sets.
- c. In the case of the 36 grenade, failure to explode although the igniter set has functioned perfectly. When this happens the grenade is broken into two or three pieces by the detonator, very little noise being heard. If an examination is made some of the explosive will usually be found.

30. In making such records or reports, the following information is to be obtained:

- a. Designation of article, number, mark, etc.
- b. Dates of manufacture and packing.
- c. Name of manufacturer, packer's notes, etc.
- d. A brief history of the grenade since arrival in the unit, ie, how stored, when the box was opened and if taken out for use on a previous occasion and not used.

31. Whenever the defective article itself can be produced, it should be forwarded with the report.

WARNING

32. IT MUST BE CLEARLY UNDERSTOOD THAT THE ABOVE PARAGRAPH DOES NOT IN ANY WAY CHANGE THE RULE THAT A BLIND GRENADE IS ON NO ACCOUNT TO BE TOUCHED BUT IS TO BE DESTROYED WHERE IT LIES, AS LAID DOWN IN PAMPHLET No 31 RANGE WORK (ALL ARMS).

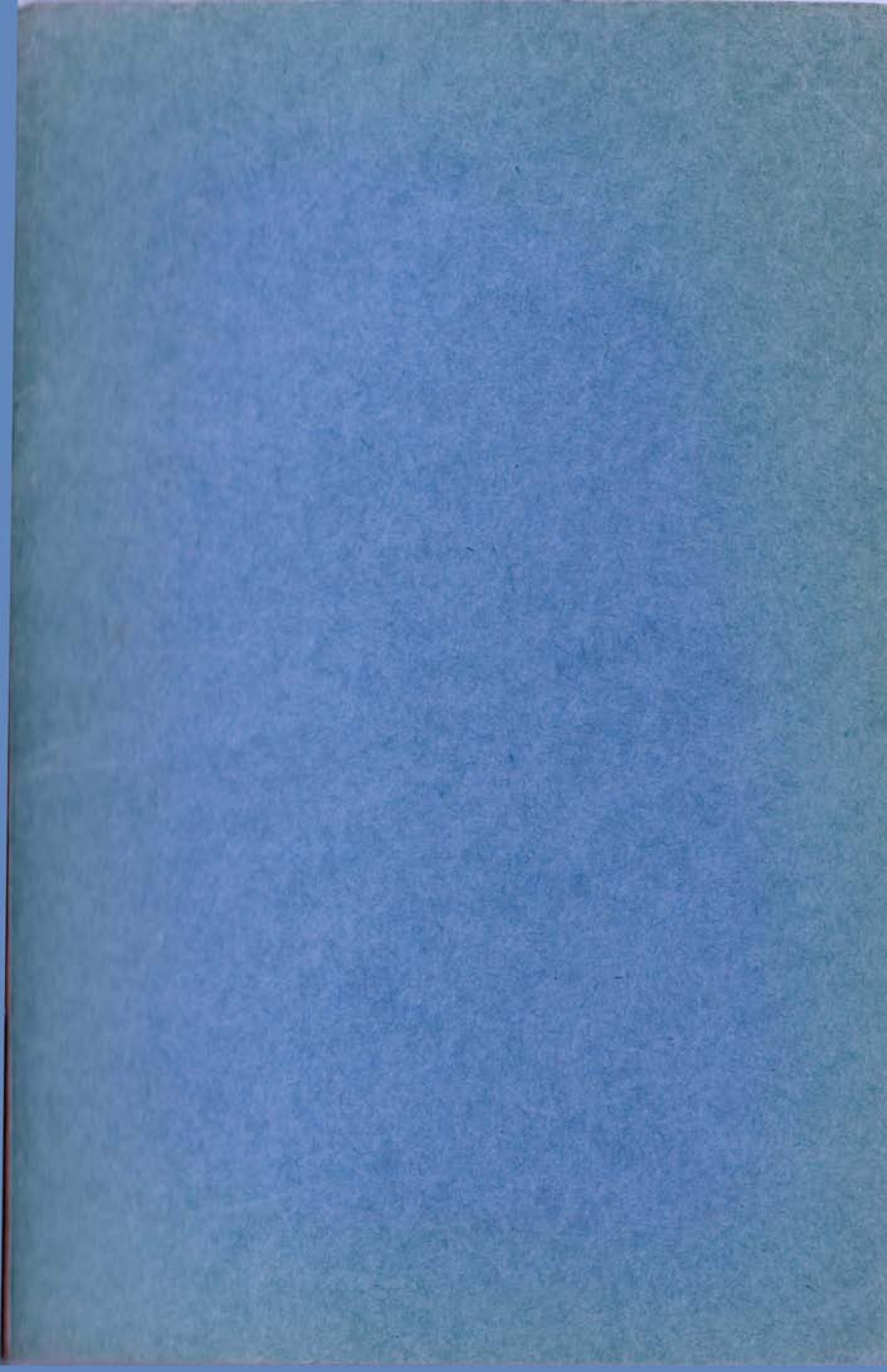
FIRING LIVE GRENADES

HE Grenades

1. Firing of live HE grenades (M26, 36 grenades) must be conducted by a qualified officer.
2. Orders for the conduct of firing, and the procedure to be followed are to be found in Lesson 2, paragraph 46 and Annex B.
3. Range safety regulations and the danger area template for grenade firing are given in Infantry Training Volume III, Pamphlet No 33. Firing is to take place from splinterproof cover at least four feet high.

WP Grenades

4. Firing, orders, procedure, and range safety regulations are the same as those listed for HE grenades in paragraphs 1 to 3. In addition, portion of the splinterproof cover is to have overhead protection against pieces of burning phosphorous.



RESTRICTED

RESTRICTED